

WHAT IS CLAIMED IS:

1. An electric toothbrush comprising:

- (a) a handle defining a housing in which is disposed a battery operated electric motor;
- (b) a motor shaft mounted in the housing along a longitudinal axis, the motor shaft being connected to the battery operated electric motor such that when the battery operated electric motor is in an ON condition , the motor shaft rotates in a direction of motion relative to its longitudinal axis;
- (c) a battery housing situated within the handle housing for receiving at least a battery, an ON switch configured with the housing to effect operation of the electric toothbrush in response to manual pressure applied to the ON switch and an OFF switch configured with the housing to effect termination of the electric toothbrush in response to manual pressure applied to the OFF switch; and
- (d) a toothbrush member comprising:
1. a body having a first end and a second end, said first end configured to be insertably coupled in said handle, said body housing a drive shaft having a first end and a second end, the first end of the drive shaft being configured for coupling with the motor shaft such that when the motor shaft rotates, the drive shaft rotates in response thereto; said second end of the drive shaft adapted to mesh with a transition gear housed within said body such that the transition gear rotates in a direction of rotation in response to a rotation of said drive shaft;
  2. a first bevel gear having a first central opening, said first bevel gear coupled with said transition gear such that the first bevel gear rotates in a direction of rotation that is at a substantially right angle from a plane of rotation of said transition gear;
  3. a second bevel gear having a second central opening, said second bevel gear meshed with said first bevel gear such that when the first bevel gear rotates, said second bevel gear rotates responsively thereto in a direction that is opposite from the direction of rotation of said first bevel gear;
  4. a first brush shaft having an upper portion and a lower portion, said lower portion extending through the first central opening of the first bevel gear, said lower portion configured for positioning within a

bearing housing extending from the second end of the body of the toothbrush member;

5. a second brush shaft having an upper portion and a lower portion, said lower portion extending through the second central opening of the second bevel gear, said lower portion configured for positioning within the bearing housing;
6. a first brush arranged with the upper portion of the first brush shaft and a second brush arranged with the upper portion of the second brush shaft such that the first brush and second brush rotate in response to the rotations of the first bevel gear and the second bevel gear via the first shaft and the second shaft; and
7. a substantially planar protective plate having a first central opening and a second central opening such that the first brush shaft extends through the first central opening of the protective plate and the second brush shaft extends through the second central opening of the protective plate and wherein the protective plate is configured to prevent foreign substances from contacting any of the first bevel gear, the second bevel gear and the transition gear.

2. The electric toothbrush of Claim 1 wherein the first bevel gear rotates in a first direction and the second bevel gear rotates in a opposite direction to the first direction.

3. An electric toothbrush comprising:

- (a) a handle defining a housing in which is disposed a motor;
- (b) a motor shaft mounted in the housing along a longitudinal axis, the motor shaft being connected to the motor such that when the motor is in an ON condition, the motor shaft rotates in a direction of motion relative to its longitudinal axis;
- (c) a toothbrush member having:
  1. a body configured to be insertably coupled in said handle, said body housing a drive shaft having a first end and a second end, the first end being configured for coupling with the motor shaft such that when the motor shaft rotates, the drive shaft rotates in response thereto; the second end of the drive shaft adapted to mesh with a transition gear housed within said body such that the transition gear rotates in a direction of rotation in response to a rotation of said second drive shaft;

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2. a first gear configured with said transition gear such that the first gear rotates in a direction of rotation that is at a substantially right angle to a plane of direction of rotation of said transition gear;
  3. a second gear meshed with said first gear such that when the first gear rotates, said second gear rotates responsively thereto in a direction that is opposite from the direction of rotation of said first gear; and
  4. a first brush arranged with said first gear and a second brush arranged with said second gear such that the first brush and second brush rotate in response to the rotations of the first gear and the second gear.

4. An toothbrush member for use with an electric toothbrush comprising:

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1. a body configured for coupling with an electric toothbrush handle, said body housing a drive shaft having a first end and a second end, the first end being configured for coupling with a driving assembly substantially located within the handle such that when the drive assembly rotates, the drive shaft rotates in response thereto; said second end of the drive shaft configured to mesh with a transition gear housed within the body such that the transition gear rotates in a direction response to a rotation of the drive shaft;
  2. a first gear configured with the transition gear such that the gear rotates in a plane that is at a substantially at a right angle from a plane of rotation of said motor gear;
  3. a second gear meshed with the first gear such that when the first gear rotates, said second gear rotates responsively thereto in a direction that is opposite from the direction of rotation of said first gear; and
  4. a first brush arranged with said first gear and a second brush arranged with said second gear such that the first brush and second brush rotate in response to the rotations of the first gear and the second gear.